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ABSTRACT

Growth and change in the quality of doctoral education from 1979 to 1984 were analyzed, using Holzemer's program evaluation schema and a repeated measures design. Fifteen nursing doctoral programs participated in both a 1979 and 1984 study using Educational Testing Service and Graduate Program Self-Assessment (GPSA) questionnaires. A total of 14 faculty, 12 students, and 12 alumni reported their perceptions of the quality of their doctoral programs on 16 dimensions. The questionnaire consisted of about 60 statements concerning characteristics of the program, with agree-to-disagree or poor-to-excellent ratings as response options, along with demographic items, such as academic rank, tenure, and years teaching. The findings suggest that, while doctoral programs have experienced a significant growth, they have maintained a quality environment. Faculty demonstrated an increased commitment to scholarly activities as evidenced by an increase in publications, presentations, and perceptions of time spent on scholarly activities. Students in 1984 were better prepared than students in 1979 and pursued their graduate education more on a part-time basis. The evidence documents a growing scholarly maturity among nursing doctoral programs. Descriptions of the 16 GPSA summary scales are appended. (SW)

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Doctoral Education in Nursing:

An Assessment of Quality, 1979-1984

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Abstract

A program evaluation schema developed by Holzemer (1982) was used to analyze growth and change in the quality of doctoral education from 1979 to 1984 in a repeated measures design. Data were analyzed from 14 nursing doctoral programs that participated in both a 1979 and 1984 study using Education Testing Service (ETS) Graduate Program Self-Assessment (GPSA) questionnaires. The findings suggest that, while doctoral programs have experienced a significant growth, they have maintained a quality environment. Faculty demonstrated an increased commitment to scholarly activities as evidenced by an increase in publications, presentations, and perceptions of time spent on scholarly activities. Students in 1984 were better prepared than students in 1979 and pursued their graduate education more on a part-time basis. In summary, evidence was presented to document a growing scholarly maturity among nursing doctoral programs.

Doctoral Education in Nursing:
An Assessment of Quality, 1979-1984

This paper presents an assessment of the growth and change in quantity and quality of doctoral programs in nursing from 1979 to 1984. The history of doctoral education in nursing has been well documented in the literature (Grace, 1978; Leininger, 1976; Matarazzo & Abdellah, 1971; Murphy, 1985). From early discussion on the types of degrees in nursing (Nursing Forum, 1966) emerged a focus on quality of doctoral programs in nursing. Leininger (1976), Cleland (1976), and Downs (1978) helped to develop this focus by suggesting questions and issues to be addressed by those desiring to help new doctoral programs in nursing. More recently, the literature has focused upon specific aspects of doctoral education. The concern for scholarship, attributes of science, and theory development highlight the continuing evolution of the discipline and science of nursing (Davenport, 1980; Donaldson & Crowley, 1978; Gortner, 1980; Meleis, Wilson, & Chater, 1980). An important impact on the evolution of the science of nursing will be made through efforts to assure quality of doctoral education in nursing.

The domains of research in nursing doctoral education have been defined. The National Research Council, consisting of three Councils whose membership includes the National Academy of

Sciences, the National Academy of Engineering, and the Institute of Medicine, proposed a definition of nursing research in 1978:

> Nursing research focuses on the role of nursing care in the prevention of illness, care of the sick, and the promotion and restoration of health. Although it relies upon and utilizes the substantive scientific information and methodology provided by the other biological and behavioral sciences, it differs from those other scientific areas in that it focuses on their relevance to nursing rather than other aspects of health care (National Research Council, 1978, p. 128).

Nursing research was finally recognized as a legitimate and distinct area of scientific inquiry by the National Research Council in 1983. The committee responsible for this recognition wrote:

> By tradition, natural inclination and previous training, nurses have a special interest in and potential competence for research in this area and it is natural that they should wish to play a part in its advancement. Nurses view health problems differently and direct the results of their research to quite different audiences than other biomedical and behavioral scientists. Hence, nursing research is usually done by nurses. The Committee therefore concurs that nursing

research is properly regarded today as a distinct area of scientific inquiry (National Research Council, 1983, p. 131).

Nursing research is perhaps best understood by examining a definition of nursing. The American Nurses' Association (1980) defined nursing: "Nursing is the diagnosis and treatment of human responses to actual or potential health problems" (p. 9). Nursing research focuses on the four characteristics outlined in this definition. These include the phenomenon of human responses to actual or potential health problems, theory application, nursing action, and evaluation of the effects of action in relation to phenomena.

To develop the cadre of nurse researchers required to develop the science of nursing, doctoral education in nursing has focused upon two primary degree routes. Certain programs emphasize the application of research findings to clinical nursing and grant the Doctor of Science in Nursing (D.S.N.) or the Doctor of Nursing Science (D.N.S.) degrees, the professional doctorate. The majority of programs emphasize more basic research and award the Doctor of Philosophy (Ph.D.) in nursing. The need for doctorally prepared nurses is staggering. The Third Report to Congress (1982) estimated a need of 13,490 doctorally prepared nurses by the year 1990. Anderson, Roth, and Palmer (1985) report that currently there are only 1,790 doctorally prepared nurses working in higher education. The Institute of Medicine (1983) also

documented the significant need for doctoral preparation for nurses in nursing.

The number of doctoral programs in nursing has increased rapidly since the early 1970's. Prior to the mid-1970's, there were only four reported programs in the United States which offered doctoral preparation with a nursing major. Today more than 30 universities offer doctoral preparation in nursing. In 1983, there were 27 reported doctoral programs in nursing with an enrollment of 1,495 students; these programs had graduated 139 doctorally prepared nurses that year (Brimmer et al., 1983; Solomon & Vaughn, 1984). The pressure to fulfill the need for increased numbers of doctorally prepared nurses threatens the quality of nursing science, its research programs, and the viability of doctoral education in nursing. To assure the quality of the science of nursing, the need for evaluation of doctoral education in nursing is clearly evident as the number of new programs continues to increase (Holzemer, 1982).

Based upon a review of the literature on criteria for assessing quality of graduate education, Holzemer (1982), restated by Chioni (1985), proposed four criteria. These included quality of the faculty, academic program, students and alumni, and available resources. These four criteria represented the significant components of a graduate program. The assessment model includes, in addition to the four criteria, a time dimension

within a systems framework of context (input), environment (process), and product (outcome). The assessment model, comprising the four criteria crossed by three dimensions of time, was used in this study as a framework to examine changes in the quality of doctoral education in nursing from 1979 to 1984.

Question

Has there been change in faculty, student, and alumni assessment of the quality of doctoral education in nursing from 1979 to 1984?

Method

Sample

In 1979, doctoral programs in nursing financed the Cooperative Program Evaluation of Doctoral Education in Nursing (Barhyte & Holzemer, 1981; Holzemer, 1978; Holzemer & Barhyte, 1979; Holzemer, Barhyte, & Clark, 1980). Eighteen of the 22 doctoral programs in nursing participated in the cooperative program evaluation. Questionnaires developed by Educational Testing Service (ETS) were completed by faculty (n=190), students (n=320), and alumni (n=104). Their responses were summarized and reported as perceptions of the quality of their doctoral programs on 16 dimensions.

In 1984, all doctoral programs in nursing were again invited

to participate in a national cooperative program evaluation study funded by the Research Branch, Division of Nursing, DHHS. There were 29 programs, and 25 of the programs agreed to participate in the study. Questionnaires were again completed by faculty (n=326), students (n=659), and alumni (n=296). The response rates for both the 1979 and 1984 data ranged from 54% to 65% returned questionnaires by faculty, student, and alumni groups.

Fourteen nursing doctoral programs participated in both the 1979 and 1984 evaluation projects and comprise the sample for this paper. The unit of analysis for the data in this paper is the overall program mean and not the individual respondent. The analysis is a repeated measures design. The sample sizes vary across faculty, students, and alumni because several programs had no doctoral alumni in 1979 and others were planning to admit students that next fall. With the program as the unit of analysis, the sample sizes are: faculty, n=14; students, n=12; and alumni, n=4.

Instruments

The Graduate Program Self-Assessment (GPSA) questionnaires developed by Educational Testing Service (ETS) were used. The GPSA questionnaires are adaptations of instruments used in the mid-1970's to study the dimensions of quality in doctoral education. Developed in cooperation with committees of graduate deans and faculty members, the questionnaires were designed to

obtain information about important quality-related program characteristics in seven areas: program purposes, faculty training and accomplishments, student ability and performance, resources, academic and social environments of the program, program processes and procedures, and alumni achievements. Research use of the questionnaires indicated that they were an easy and reliable way of obtaining useful information about a variety of quality-related elements (Hartnett, Clark, & Baird, 1978). Pelczar (1985) discussed the background of the GPSA scales. He stated, "The new underlying assumption is that the perceptions and judgments of faculty, students, and alumni can contribute to a better understanding and quality of a department or program" (p. 98).

The core of each questionnaire consists of approximately 60 statements concerning characteristics of the program, with agree-to-disagree or poor-to-excellent ratings as response options. Judgments about individual items are combined to form 16 summary scale scores to describe several areas of program functioning. Descriptions of these summary scales and the number of individual items included in each scale are contained in Table 1. Where appropriate, identical items appear on all three questionnaires, thus allowing programs to compare the opinions of faculty, students, and alumni.

Insert Table 1 about here

Evidence concerning the psychometric reliability and validity of the GPSA instruments is based on the use of similar, experimental questionnaires in the assessment of seventy-three doctoral programs in the fields of chemistry, history, and psychology (Clark, Hartnett, & Baird, 1976) and is summarized by Clark (1983) in the GPSA Handbook for Users. The median reliability (intraclass correlation) for the summary scales was .76, with a range from .46 to .90. Tests of scale homogeneity or internal consistency (coefficient alpha) ranged from .68 to .93, with a median of .83. Intercorrelations of department scores on the summary scales were generally positive and moderate, with a median correlation coefficient of .31. None of the correlations, however, was sufficiently high to preclude the possibility of within-program differences in scale scores, and the areas of program functioning were considered sufficiently distinct conceptually to warrant separate assessment. Content, construct, and concurrent validity of the GPSA instruments were examined in a number of areas and are summarized in the technical report of the research (Clark, Hartnett, & Baird, 1976). Research evidence indicated that responses to GPSA questionnaire scales should be valid and useful indicators of program status. Reliability and

validity of the GPSA instruments for studying dimensions of quality in nursing doctoral education are currently under investigation and will be reported in a future article.

In addition to the individual items comprising the 16 scales, the questionnaires include several demographic items, such as academic rank, full-time appointment, tenure, completed post doctorate, supervising post-doctoral fellows, years teaching, and number of publications. The response scale for these items was fixed and typically a yes/no format or simply a frequency count.

Procedure

Questionnaires were mailed during the winters of 1979 and 1984 to faculty and students of the participating programs. Alumni questionnaires were mailed approximately one month later to avoid a faculty member simultaneously receiving both the faculty and alumni questionnaire.

Results

The results have been organized according to Holzemer's (1982) program evaluation schema; this schema is presented in Table 2. The results are presented by criteria across the time perspective. Where appropriate, two-tailed, matched-pair *t* tests were calculated to assess if any significant changes had occurred from 1979 to 1984. Two-tailed, rather than the more powerful

one-tailed, tests were used so that both positive and negative changes could be detected. With program means as the unit of analysis, this small sample size study has a greater risk of failing to detect a true difference (Type II error) than detecting a difference that in fact is false (Type I error). Therefore, the alpha rate was maintained at the traditional 5% per comparision level.

Insert Table 2 about here

Between 1979 and 1984 the context for nursing doctoral faculty remained fairly constant (see Table 3). The percentage of nursing doctoral faculty remained constant at the professor level (35% to 38%), declined at the associate professor level (46% to 38%), and significantly increased at the assistant professor level (16% to 24%, $p=.05$). Nursing doctoral faculty tended to be employed full time (91% to 95%) and approximately two-thirds had tenure (58% to 60%). They completed their doctoral studies approximately nine years ago and had been working for seven years at their school.

Insert Table 3 about here

The environment or faculty activity between 1979 and 1984 appeared somewhat different (see Table 4). Nursing doctoral faculty reported significantly less time spent teaching and advising (49% to 44%, $p=.01$) and a slight increase in time spent on research and scholarly activity (21% to 25%, $p=.07$). They reported a significant increase in the number of presentations

given in the last two years (5.7 to 8.2, $p=.01$). Faculty's perceptions of their concern for students and the faculty work environment remained stable from 1979 to 1984.

Insert Table 4 about here

Faculty productivity increased modestly from 1979 to 1984 (Table 5) across all measures. Only faculty's report of research activity (Scale 15) increased significantly (42% to 51%, $p=.03$). Holzemer and Chambers (in press) reported a significant correlation between Scale 15, percent of faculty research activities, and external measures of productivity; hence, the significant increase in research productivity reported in Scale 15 may be viewed as capturing the non-significant but meaningful increases in the other productivity measures reported in Table 5, such as number of articles and book chapters in the last three years.

Insert Table 5 about here

There were several significant changes in the student context or inputs between 1979 and 1984 (Table 6). Significantly fewer doctoral students were enrolled full time in 1984 than 1979 (75% to 65%, $p=.00$). The students enrolled in 1984 reported a

significantly higher undergraduate grade point average than did the 1979 students (3.33 to 3.43, p=.01). A significant number of students in 1984 reported less interest in seeking employment in a doctoral-granting university (60% to 48%, p=.00) and increased interest in seeking employment in non-profit agencies (8% to 15%, p=.04). Students reported a significant increase in their interest in a research career as their primary job activity (11% to 19%, p=.00) and a significant decrease in their interest in combining teaching and research (60% to 46%, p=.03).

Insert Table 6 about here

Students' perceptions of the quality of their nursing doctoral programs remained consistent from 1979 to 1984 (Table 7). Although students' views of the quality of teaching increased slightly, their overall perceptions remained only modestly enthusiastic (2.81 to 2.98 on a 4-point scale). Both faculty and students viewed the students as highly committed and motivated (range 3.37 to 3.54). Overall, students continued to be relatively satisfied with their doctoral programs (3.32 and 3.40) and somewhat less satisfied with their assistantship experience in 1984 than 1979 (3.18 to 2.92, p=.08). There was an insufficient sample size to assess statistically student outcomes (Table 8). Students continued to earn high GPAs in their programs (3.73 on a

4-point scale). Alumni rated positively their dissertation experience (3.04 and 3.20) and the value of their educational experience for employment (3.02 and 3.16). Both of these scale score changes equaled an increase close to one standard deviation.

Insert Tables 7 and 8 about here

In the schema presented in Table 9, only the environment of the academic program was assessed. No significant changes were observed between 1979 and 1984 in students' and faculty's perceptions of the environment of the academic program. Faculty rated the environment for learning somewhat higher than students for both 1979 (3.17 and 3.00) and 1984 (3.20 and 3.05); both had a fairly positive view of the environment for learning. Faculty and students rated the scholarly excellence of their respective programs somewhat high (3.12 to 3.30). Students had a slightly less positive view of the curriculum than did faculty for both 1979 (3.14 to 2.97) and 1984 (3.11 to 2.91).

Insert Table 9 about here

Table 10 presents both the context and environment for the criterion resources/management. There were no significant changes in perceptions of available resources, departmental procedures, or

department direction and performance from 1979 to 1984. Both faculty and students' views of available resources were modest and decreased from 1979 to 1984. Faculty's view of their department's direction and performance increased in a meaningful, positive direction, although not significant with a two-tailed test (2.93 to 3.04, p=.06).

Insert Table 10 about here

Discussion

These findings document that, while doctoral programs in nursing have experienced an increase in the number of programs and the percentage of assistant professors within these programs, they have been able to maintain a perception of quality in their learning environment. The measures used in this study to assess perceptions of the quality of the environment have been documented to be significantly related to faculty scholarship (Holzemer & Chambers, in press), which supports the statement that academic nursing has maintained quality during a growth period. The findings empirically validate the observations of McElmurry, Krueger, and Parsons (1982), who stated that quality doctoral education is related to faculty research. These findings challenge Leininger's (1985) view that doctoral education in nursing may reflect a culture of mediocrity.

Faculty are demonstrating an increased commitment to scholarly activities as evidenced by an increase in publications, presentations, and perception of time spent on scholarly activities. Students in 1984 are better prepared than students in 1979 and are pursuing their graduate education more on a part-time basis. Students' career goals have changed slightly, with significantly greater interest in pursuing research careers in non-profit agencies rather than the traditional faculty teaching/research model. Unfortunately, there are no comparative norms published by Educational Testing Service (ETS) for other disciplines against which to compare the findings from this study. Holzemer, Barhyte, and Clark (1980) partially compared the 1979 nursing data set with the original data reported by ETS for the fields of chemistry, psychology, and history. They reported that student, faculty, and alumni perceptions of nursing doctoral programs tended to be similar to perceptions of participants from the other disciplines.

The findings from this 1979-1984 comparative study are limited in that they are self-reports of perceptions of the environment and research productivity. However, self-reports are one significant mechanism available for evaluation of quality of educational programs and provide useful information for decision making. Ultimately, research must examine the substantive foci of doctoral education in nursing and the contribution of this

knowledge to the nation's health. In summary, these data suggest that the quality of doctoral education in nursing has maintained its commitment to excellence as reported by faculty, students, and alumni from 1979 to 1984 during a time when significant growth occurred. Evidence of growing scholarly maturity among nursing faculty and students has been documented in this repeated measures design.

References

American Nurses' Association. (1980). Nursing: A social policy statement. Kansas City, MO: American Nurses' Association.

Anderson, E., Roth, P., & Palmer, I. (1985). A national survey of the need for doctorally prepared nurses in academic settings and health service agencies. Journal of Professional Nursing, 1 (2), 23-33.

Barhyte, D. & Holzemer, W.L. (1981). Cooperative evaluation in nursing doctoral education. Proceedings of the 1981 Forum on Doctoral Education in Nursing (Appendix). Seattle, Washington: University of Washington.

Brimmer, P.F., Skoner, M.M., Pender, N.J., Williams, C., Fleming, J., & Werley, H.H. (1983). Nurses with doctoral degrees: Education & employment characteristics. Research in Nursing and Health, 6 (4), 157-165.

Chioni, R.M. (1985). Discussion: Areas in which quality control is essential. Journal of Professional Nursing, 1 (2), 108-109.

Clark, M.J. (1983). Graduate Program Self-Assessment Service for Doctoral Programs: Handbook for Users. Princeton, NJ: Educational Testing Service.

Clark, M.J., Hartnett, R.T., & Baird, L.L. (1976). Assessing Dimensions of Quality in Doctoral Education: A Technical

Report of a National Study in Three Fields. Princeton, NJ: Educational Tesing Service.

Cleland, V. (1976). Developing a doctoral program. Nursing Outlook, 24, 631-635.

Davenport, N.J. (1980). The nurse scientist--between two worlds. Nursing Outlook, 28 (1), 28-31.

Donaldson, S. & Crowley, D. (1978). The discipline of nursing. Nursing Outlook, 26 (2), 113-120.

Downs, F. S. (1978). Doctoral education in nursing: Future directions. Nursing Outlook, 26 (1), 56-61.

Gortner, S. (1980). Nursing science in transition. Nursing Research, 29 (3), 180-183.

Grace, H. (1978). The development of doctoral education in nursing: An historical perspective. Journal of Nursing Education, 17 (4), 17-29.

Hartnett, R.T., Clark, M.J., & Baird, L.L. (1978). Reputational ratings of doctoral programs. Science, 199 (29), 1310-1314.

Holzemer, W.L. (1978). Towards a cooperative venture in program evaluation. Proceedings of the 1978 Forum on Doctoral Education in Nursing (pp. 65-71). Chicago: Rush University.

Holzemer, W.L. (1982). Quality in graduate nursing education. Nursing and Health Care, 3 (11), 171-189.

Holzemer, W.L. & Barhyte, D. (1979). Cooperative program evaluation project in doctoral education in nursing.

Proceedings of the 1979 Forum on Doctoral Education in Nursing (pp. 51-64). San Francisco: University of California, San Francisco.

Holzemer, W., Barhyte, D., & Clark, M. (1980). Cooperative program evaluation project in doctoral education in nursing. Proceedings of the 1980 Forum on Doctoral Education in Nursing (68-109). Detroit, Michigan: Wayne State University.

Holzemer W.L., & Chambers, D.B. (in press). Healthy nursing doctoral programs: Relationship between perceptions of the academic environment and productivity of faculty and alumni. Research in Nursing & Health.

Institute of Medicine, Division of Health Care Services. (1983). Nursing and Nursing Education: Public Policies and Private Actions. Washington, D.C.: National Academy Press.

Leininger, M. (1976). Doctoral programs for nurses: Trends, questions, and projected plans. Nursing Research, 25 (3), 201-210.

Leininger, M. (1985). Current doctoral education: A culture of mediocrity or excellence? In J. McClosky & H. Grace (Eds.), Current issues in nursing (pp. 219-235). Boston: Blackwell Scientific Publications.

Matarazzo, J.D. & Abdellah, F.G. (1971). Doctoral education for nurses in the United States. Nursing Research, 20, 404-414.

McElmurry, B.J., Krueger, J.C., & Parsons, L.C. (1982). Resources for graduate education: A report of a survey for forty states in the Midwest, West, & Southern regions. Nursing Research, 31 (1), 5-10.

Meleis, A.I., Wilson, H.S., & Chater, S. (1980). Toward scholarliness in doctoral dissertations: An analytical model. Research in Nursing and Health, 3, 115-124.

Murphy, J.F. (1985). Doctoral education of nurses: Historical developments, programs, and graduates. In Werley, H.H., & Fitzpatrick, J.J. (Eds.) Annual review of nursing research (Vol. 3, pp. 171-189). New York: Springer.

National Research Council (1978; 1983). Personnel Needs & Training for Biomedical & Behavioral Research. Washington, D.C., National Academy of Sciences.

Nursing Forum (1966), 5 (2).

Pelczar, M.J. (1985). The nature of the doctorate and criteria for quality. Journal of Professional Nursing, 1 (2), 94-100.

Solomon, S. B. & Vaughn, J.C. (1984). Nursing Student Census with Policy Implications. New York: National League for Nurisng, Divsion of Public Policy and Research.

Third Report to Congress (February, 17, 1982). Nurse Supply, Distributions, and Requirements. (DHHS Publ. No. HRA 82-7). Nurse Training Act of 1975.

Table 1

Description of 16 GPSA Summary Scales

1. Environment for Learning. The extent to which the department provides a supportive environment characterized by mutual respect and concern between students and professors, students' helpfulness to one another, and department openness to new ideas and different points of view. (6 items)
2. Scholarly Excellence. Rated excellence of the department faculty, ability of students, and intellectual stimulation in the program. (5 items)
3. Quality of Teaching. Faculty excitement for new ideas and helpfulness in dealing with class work; student evaluation of faculty teaching methods, grading procedures, and preparation for class. (7 items)
4. Faculty Concern for Students. The extent to which faculty members are perceived to be interested in the welfare and professional development of students, accessible, and aware of student needs, concerns, and suggestions. (5 items)
5. Curriculum. Ratings of the variety and depth of graduate course and program offerings, program flexibility, opportunities for individual projects, and interactions with related departments. (5 items)

(table continues)

6. Departmental Procedures. Ratings of departmental policies and procedures such as the relevance and administration of degree requirements, evaluation of student progress toward the degree, academic advisement of students, and helpfulness to graduates in finding appropriate employment. (8 items faculty, 10 items students, 9 items alumni)

7. Available Resources. Ratings of available facilities such as libraries and laboratories, and overall adequacy of physical and financial resources for a doctoral program. (3 items faculty, 2 items students and alumni)

8. Student Commitment and Motivation. Judgments about the extent to which doctoral students do a lot of unassigned reading, demonstrate enthusiastic involvement with the field, carefully prepare for courses, and persist on projects despite setbacks. (4 items)

9. Student Satisfaction with Program. Self-reported student satisfaction with the program as reflected in judgments about the amount that has been learned, preparation for intended career, desire to transfer, and willingness to recommend the program to a friend. (4 items students, 3 items alumni)

10. Student Assistantship or Internship Experiences. Ratings of preparation for and supervision of assigned duties; contribution of the experiences to academic and professional development. (7 items)

(table continues)

11. Departmental Direction and Performance. Faculty judgments about teaching practices in the department, and about departmental management in areas such as the career development of junior faculty, planning, and administration. (7 items)

12. Faculty Work Environment. Self-reported faculty satisfaction with departmental objectives and procedures, academic freedom, opportunities to influence decisions, and relationships with other faculty members; sense of conflicting demands and personal strain. (6 items)

13. Alumni Dissertation Experiences. Judgments about the ways in which dissertation topics were identified and committees appointed, interactions with the committee, standards of performance, and relationship of the experience to other professional skills and employment demands. (11 items)

14. Value of Educational Experiences for Employment. Alumni judgments about their graduate school experiences as preparation for present work demands in areas such as required and elective courses, associations with faculty members and students, departmental standards, and gains in specific knowledge or skills. (13 items)

(table continues)

15. Faculty Research Activities. The extent to which faculty members report receiving awards for outstanding research or scholarly writing, editing professional journals, refereeing articles submitted to professional journals, and receiving grants to support research or other scholarly or creative work. (6 items)

16. Faculty Professional Activities. The extent to which faculty members report serving on national review or advisory councils, holding office in reginal or national professional associations, and receiving awards for outstanding teaching or profesisonal practice. (5 items)

Table 2

Result Tables Organized by Program Evaluation Schema

Criteria	Context (Input)	Environment (Process)	Product (Outcome)
Faculty	Table 3	Table 4	Table 5
Students	Table 6	Table 7	Table 8
Academic Program	n/a	Table 9	n/a
Resources	Table 10	Table 10	n/a

Table 3
Assessment of change in the CONTEXT/INPUT for FACULTY of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
Academic Rank							
% Assist. Prof	16	15	24	13	2.21	13	0.05
% Assoc. Prof	46	19	38	19	-1.31	13	0.21
% Professor	38	22	35	20	-0.51	13	0.62
% Full-time employment	95	8	91	8	-1.34	13	0.20
% Yes Tenure	60	25	58	24	-0.57	13	0.58
Years since receiving doc.	8.8	2.3	8.8	2.7	0.00	13	1.00
Years teaching in this dept.	6.9	2.5	7.4	2.3	0.62	13	0.55
Years total teaching exp.	12.5	3.0	13.8	3.2	1.41	13	0.18

[a]Matched-pair t test with two-tailed probability

Table 4
Assessment of change in the ENVIRONMENT/PROCESS for FACULTY of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
% time teaching/ advising	49	12	44	8	-3.05	13	0.01
% time research/ scholarly work	21	7	25	6	1.98	13	0.07
% time admin/ consulting	30	11	31	10	1.00	13	0.33
# days away past 12 months	15.4	5.8	14.3	4.3	-0.72	13	0.49
# presentations last 2 years	5.7	2.3	8.2	2.8	3.35	13	0.01
Scale 4. Faculty Concern for students	3.15	.22	3.20	.23	0.53	13	0.61
Scale 12. Faculty Work Environment	2.97	.22	3.05	.21	0.86	13	0.41

[a]Matched-pair t test with two-tailed probability

Table 5
Assessment of change in the PRODUCT/OUTCOMES for FACULTY of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
# articles & book chapts last 3 yrs	4.3	2.3	5.6	2.1	1.93	13	0.08
# total pubs last 3 years	6.6	3.3	7.4	2.5	0.75	13	0.47
# articles & book chapts in career	13.2	7.8	17.0	6.9	1.86	13	0.09
# total pubs in entire career	19.6	9.5	22.1	8.9	0.81	13	0.43
Scale 15. % Faculty Res. Activities	42	13	51	12	2.37	13	0.03
Scale 16. % Faculty Prof. Activities	46	11	49	7	0.70	13	0.49

[a]Matched-pair t test with two-tailed probability

Table 6
Assessment of change in the CONTEXT/INPUTS for STUDENTS of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
# yrs between undergrad & doc enrollmt	9.33	1.07	10.33	1.83	1.77	11	0.10
% degree goal							
Ph.D.	58	50	57	50	-0.039	11	0.71
Other	39	48	24	30	-2.40	11	0.04
% enrolled full time	75	26	65	22	-3.86	11	0.00
GPA Undergrad	3.33	0.07	3.43	0.07	3.55	11	0.01
% preferred employment setting							
PhD grant univ	60	13	48	11	-3.94	11	0.00
4 yr coll/univ	15	9	21	10	2.07	11	0.06
Community coll	1	3	0	0	-1.70	11	0.12
Non-prof agency	8	6	15	8	2.35	11	0.04
Bus/industry	1	3	3	3	1.12	11	0.29
Government	4	5	5	4	0.40	11	0.69
Self-emply/pri	5	6	5	4	0.17	11	0.87
% preferred job activity							
Research	11	9	19	7	3.61	11	0.00
Research/teach	60	16	46	10	-2.49	11	0.03
Teaching	9	11	10	10	0.42	11	0.68
Admin/mgmt	6	11	12	8	1.73	11	0.11
Prof services	6	7	11	12	1.71	11	0.11
% who would like postdoc/fellow	33	18	39	7	1.12	11	0.29
% plan to return to previous employer							
Yes, cur pos.	18	15	26	22	2.13	11	0.06
Yes, prev pos.	5	4	4	3	-0.60	11	0.56
Yes, new pos.	21	16	16	6	-1.52	11	0.16
No	54	15	51	17	-0.75	11	0.48

(table continues)

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
# articles & book chapters-career	2	1	3	1	1.10	11	0.30

[a]Matched-pair t test with two-tailed probability

Table 7
Assessment of change in the ENVIRONMENT/PROCESS for STUDENTS of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
Scale 3. Quality of teaching							
Student's view	2.81	0.25	2.98	0.25	1.85	10	0.09
Scale 8. Student commitment & motivation							
Student's view	3.43	0.18	3.54	0.14	1.84	10	0.10
Faculty's view	3.41	0.21	3.37	0.34	-0.45	13	0.66
Scale 9. Student satisfaction with program	3.32	0.30	3.40	0.24	1.05	10	0.32
Scale 10. Student assistantship experience	3.18	0.20	2.92	0.30	-2.03	8	0.08

[a] Matched-pair t test with two-tailed probability

Table 8
Assessment of change in the PRODUCT/OUTCOMES for STUDENTS of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
Grad GPA	3.73	0.07	3.72	0.06	-0.58	11	0.58
Scale 13. Alumni dissertation exp.	3.04	0.15	3.20	0.14	b	b	b
Scale 14. Value of educ exp. for employmt	3.02	0.22	3.16	0.21	b	b	b

[a]Matched-paired t test with two-tailed probability

[b]Insufficient sample size (n=4) for statistical comparison

Table 9
Assessment of change in the ENVIRONMENT/PROCESS for ACADEMIC PROGRAM of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
Scale 1. Environment for Learning							
Student's view	3.00	0.14	3.05	0.18	1.50	10	0.16
Faculty's view	3.17	0.17	3.20	0.14	0.60	13	0.56
Scale 2. Scholarly Excellence							
Student's view	3.15	0.32	3.30	0.28	1.93	10	0.08
Faculty's view	3.12	0.17	3.22	0.40	1.02	13	0.33
Scale 5. Curriculum							
Student's view	2.97	0.19	2.91	0.25	-0.70	10	0.50
Faculty's view	3.14	0.22	3.11	0.30	-0.26	13	0.80

[a]Matched- pair t test with two-tailed probability

Table 10
Assessment of change in the CONTEXT/INPUT and ENVIRONMENT/PROCESS for RESOURCES/MANAGEMENT of nursing doctoral programs from 1979-1984

Variables	1979		1984		Significance		
	M	SD	M	SD	t	df	p[a]
CONTEXT (INPUT)							
Scale 7. Available Resources							
Student's view	3.00	0.47	2.84	0.39	-0.73	10	0.49
Faculty's view	2.95	0.36	2.70	0.53	-1.77	13	0.10
ENVIRONMENT (PROCESS)							
Scale 6. Department Procedures							
Student's view	2.90	0.12	2.96	0.23	0.91	10	0.39
Faculty's view	3.10	0.26	3.20	0.23	1.19	13	0.25
Scale 11. Department Direction & Performance							
Faculty's view	2.93	0.21	3.04	0.20	2.09	13	0.06

[a]Matched-paired t test with two-tailed probability